SEQUENCE LISTING

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<120> COMPOSITIONS AND METHODS FOR GENERATING
MONOCLONAL ANTIBODIES REPRESENTATIVE OF A SPECIFIC CELL TYPE

<130> 415072000110

<140> 09/614,483
<141> 2000-07-10

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<151> 1998-12-22

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cac ctc ggt tct atc gat tcg aat tcg gcc aca ctg gcc gga tcc tct       48
His Leu Gly Ser Ile Asp Ser Asn Ser Ala Thr Leu Ala Gly Ser Ser
    -150                -145                -140

aga gat ccc tcg acc tcg acc cac gcg tcc gcc ttg ctc ttc tta tcc       96
Arg Asp Pro Ser Thr Ser Thr His Ala Ser Ala Leu Leu Phe Leu Ser
-135                -130                -125                -120

tct cct ttg caa gaa gag aaa ctc ctc gga gac agc agc caa aaa gaa      144
Ser Pro Leu Gln Glu Glu Lys Leu Leu Gly Asp Ser Ser Gln Lys Glu
                -115                -110                -105

acc gcg tct acc ttg aca gac tac tga agc gtc tcc tgg aat aag agg      192
Thr Ala Ser Thr Leu Thr Asp Tyr  *  Ser Val Ser Trp Asn Lys Arg
           -100                     -95                 -90

gtc gcc cgc ctt ggg agt agc agc caa aga cgc tga ggg agg gtg tgg      240
Val Ala Arg Leu Gly Ser Ser Ser Gln Arg Arg  *  Gly Arg Val Trp
            -85                 -80                 -75
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agg ggg gag gga gga gtt gcg ggt tcc gcg tgg agg aaa gtt gcg tgt      288
Arg Gly Glu Gly Gly Val Ala Gly Ser Ala Trp Arg Lys Val Ala Cys
            -70                 -65                 -60

ggc aca gac ccg acg gcg cag cgc cac agc gcc cgg ggg atc gtg tgt      336
Gly Thr Asp Pro Thr Ala Gln Arg His Ser Ala Arg Gly Ile Val Cys
        -55                 -50                 -45

ctt gga aaa aaa agt cgc tgt ccc cct aaa gcg aga ccc aca agc gag      384
Leu Gly Lys Lys Ser Arg Cys Pro Pro Lys Ala Arg Pro Thr Ser Glu
    -40                 -35                 -30

cgg gcc ccg tgg gcc cgg gga cga cgc ccc ctc ctg cgg cgt gga ctt      432
Arg Ala Pro Trp Ala Arg Gly Arg Arg Pro Leu Leu Arg Arg Gly Leu
-25                 -20                 -15                 -10

tgt cgg tgg cct tct agg agg agg aat atg gca tct aaa ggg tcc cct      480
Cys Arg Trp Pro Ser Arg Arg Arg Asn Met Ala Ser Lys Gly Ser Pro
                -5                  1                   5

tct tgc cgt ctg gtt ttc tgc ctc ttg atc tcc gcc gcg gtc ctc aga      528
Ser Cys Arg Leu Val Phe Cys Leu Leu Ile Ser Ala Ala Val Leu Arg
        10                  15                  20

cca ggc ctc gga tgg tac act gtc aac tca gca tac gga gat acc att      576
Pro Gly Leu Gly Trp Tyr Thr Val Asn Ser Ala Tyr Gly Asp Thr Ile
    25                  30                  35

gtc atg cct tgc aga ctg gat gta cct cag aac ctc atg ttt ggc aaa      624
Val Met Pro Cys Arg Leu Asp Val Pro Gln Asn Leu Met Phe Gly Lys
 40                  45                  50                  55

tgg aaa tat gaa aag cct gat ggg tcc cca gta ttt att gca ttc aga      672
Trp Lys Tyr Glu Lys Pro Asp Gly Ser Pro Val Phe Ile Ala Phe Arg
                60                  65                  70

tct tct aca aag aaa agt gtg cag tat gat gat gta cca gag tac aag      720
Ser Ser Thr Lys Lys Ser Val Gln Tyr Asp Asp Val Pro Glu Tyr Lys
            75                  80                  85

gac aga ctg agc ctc tca gaa aac tac act ctg tct atc aac aat gca      768
Asp Arg Leu Ser Leu Ser Glu Asn Tyr Thr Leu Ser Ile Asn Asn Ala
        90                  95                  100

aag atc agt gac gaa aag aga ttt gtg tgc atg cta gtg acc gag gac      816
Lys Ile Ser Asp Glu Lys Arg Phe Val Cys Met Leu Val Thr Glu Asp
    105                 110                 115

aac gtg ttt gag gca cct acc ctg gtc aag gtg ttc aag caa cca tct      864
Asn Val Phe Glu Ala Pro Thr Leu Val Lys Val Phe Lys Gln Pro Ser
120                 125                 130                 135

aaa cct gaa att gta aac aga gca gcg ttt ctt gaa aca gag cag cta      912
Lys Pro Glu Ile Val Asn Arg Ala Ala Phe Leu Glu Thr Glu Gln Leu
                140                 145                 150

aaa aag tta ggt gac tgc att tca aga gac agt tac cca gac ggc aac      960
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Lys Lys Leu Gly Asp Cys Ile Ser Arg Asp Ser Tyr Pro Asp Gly Asn
            155                 160                 165

atc acg tgg tat agg aat ggg aaa gtg cta cag cct gtt gat gga gag     1008
Ile Thr Trp Tyr Arg Asn Gly Lys Val Leu Gln Pro Val Asp Gly Glu
        170                 175                 180

gtg tcc ata ctt ttt aaa aag gaa att gat cca ggt act cag ttg tat     1056
Val Ser Ile Leu Phe Lys Lys Glu Ile Asp Pro Gly Thr Gln Leu Tyr
    185                 190                 195

acc atg act tcc tcc ttg gag tac aag aca acc aag tct gac ata caa     1104
Thr Met Thr Ser Ser Leu Glu Tyr Lys Thr Thr Lys Ser Asp Ile Gln
200                 205                 210                 215

atg cca ttc acc tgt tct gtg aca tat tat gga cct tcg ggc cag aaa     1152
Met Pro Phe Thr Cys Ser Val Thr Tyr Tyr Gly Pro Ser Gly Gln Lys
                220                 225                 230

aca att tat tct gaa caa gca atc ttt gat att tac tat cct aca gag     1200
Thr Ile Tyr Ser Glu Gln Ala Ile Phe Asp Ile Tyr Tyr Pro Thr Glu
            235                 240                 245

cag gtg aca ata caa gta ctg cca cca aaa aat gcc atc aaa gaa ggg     1248
Gln Val Thr Ile Gln Val Leu Pro Pro Lys Asn Ala Ile Lys Glu Gly
        250                 255                 260

gac aac atc acc ctt cag tgc ttg ggg aat ggc aac cca cct cct gag     1296
Asp Asn Ile Thr Leu Gln Cys Leu Gly Asn Gly Asn Pro Pro Pro Glu
    265                 270                 275

gag ttc atg ttt tac tta cca ggg cag gct gaa ggc ata aga agc tca     1344
Glu Phe Met Phe Tyr Leu Pro Gly Gln Ala Glu Gly Ile Arg Ser Ser
280                 285                 290                 295

aac act tac aca ctg aca gac gtg aga cgc aat gcc acc ggg gac tac     1392
Asn Thr Tyr Thr Leu Thr Asp Val Arg Arg Asn Ala Thr Gly Asp Tyr
                300                 305                 310

aaa tgt tct ctc atc gac caa aga aac atg gca gct tca aca acc atc     1440
Lys Cys Ser Leu Ile Asp Gln Arg Asn Met Ala Ala Ser Thr Thr Ile
            315                 320                 325

act gtt cac tac ttg gat tta tcc tta aac cca agt ggg gaa gtg acc     1488
Thr Val His Tyr Leu Asp Leu Ser Leu Asn Pro Ser Gly Glu Val Thr
        330                 335                 340

aag cag atc ggt gat acc ctg cct gtg tct tgc aca ata tct gca agt     1536
Lys Gln Ile Gly Asp Thr Leu Pro Val Ser Cys Thr Ile Ser Ala Ser
    345                 350                 355

agg aat gca act gtg gtg tgg atg aag gat aac atc agg ctc cga tct     1584
Arg Asn Ala Thr Val Val Trp Met Lys Asp Asn Ile Arg Leu Arg Ser
360                 365                 370                 375

agt cca tcc ttt tct agt ctt cat tat cag gat gct ggg aac tat gtc     1632
Ser Pro Ser Phe Ser Ser Leu His Tyr Gln Asp Ala Gly Asn Tyr Val
```

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                380                 385                 390

tgt gaa act gct ctt cag gag gtt gag gga ctg aag aaa agg gag tcg     1680
Cys Glu Thr Ala Leu Gln Glu Val Glu Gly Leu Lys Lys Arg Glu Ser
            395                 400                 405

ctg acc ctc atc gta gaa gga aaa cct caa atc aaa atg aca aag aaa     1728
Leu Thr Leu Ile Val Glu Gly Lys Pro Gln Ile Lys Met Thr Lys Lys
        410                 415                 420

act gat ccc agt gga ctg tct aag act ata atc tgc cat gtg gaa ggg     1776
Thr Asp Pro Ser Gly Leu Ser Lys Thr Ile Ile Cys His Val Glu Gly
    425                 430                 435

ttt cca aag cca gct ata cag tgg acc att acc ggc agt gga agc gtc     1824
Phe Pro Lys Pro Ala Ile Gln Trp Thr Ile Thr Gly Ser Gly Ser Val
440                 445                 450                 455

ata aac caa aca gag gag tct cct tat att aat ggc agg tat tat agt     1872
Ile Asn Gln Thr Glu Glu Ser Pro Tyr Ile Asn Gly Arg Tyr Tyr Ser
                460                 465                 470

aaa att atc att tcc cct gag gag aat gtt aca tta act tgc aca gca     1920
Lys Ile Ile Ile Ser Pro Glu Glu Asn Val Thr Leu Thr Cys Thr Ala
            475                 480                 485

gaa aac caa ctg gag aga aca gta aac tcc ctg aat gtc tct gcg ata     1968
Glu Asn Gln Leu Glu Arg Thr Val Asn Ser Leu Asn Val Ser Ala Ile
        490                 495                 500

agt att cca gaa cac gat gag gca gac gat ata agt gat gaa aat aga     2016
Ser Ile Pro Glu His Asp Glu Ala Asp Asp Ile Ser Asp Glu Asn Arg
    505                 510                 515

gaa aag gtg aat gac cag gcc aaa cta att gtg ggc att gtg gtt ggt     2064
Glu Lys Val Asn Asp Gln Ala Lys Leu Ile Val Gly Ile Val Val Gly
520                 525                 530                 535

ctc ctc ctc gcc gcc ctc gtc gcc ggt gtc gtc tac tgg ctg tac atg     2112
Leu Leu Leu Ala Ala Leu Val Ala Gly Val Val Tyr Trp Leu Tyr Met
                540                 545                 550

aag aaa tcg aaa act gca tca aaa cat gca aaa aaa aaa aaa aaa aaa     2160
Lys Lys Ser Lys Thr Ala Ser Lys His Ala Lys Lys Lys Lys Lys Lys
            555                 560                 565

aaa aaa aag ggc ggc cgc gac                                       2181
Lys Lys Lys Gly Gly Arg Asp
        570
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<213> Rattus rattus

<220>

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Arg Asp Pro Ser Thr Ser Thr His Ala Ser Ala Leu Leu Phe Leu Ser
    -135                 -130                 -125
Ser Pro Leu Gln Glu Glu Lys Leu Leu Gly Asp Ser Ser Gln Lys Glu
-120                 -115                 -110                 -105
Thr Ala Ser Thr Leu Thr Asp Tyr Ser Val Ser Trp Asn Lys Arg Val
                -100                 -95                  -90
Ala Arg Leu Gly Ser Ser Ser Gln Arg Arg Gly Arg Val Trp Arg Gly
             -85                  -80                  -75
Glu Gly Gly Val Ala Gly Ser Ala Trp Arg Lys Val Ala Cys Gly Thr
         -70                  -65                  -60
Asp Pro Thr Ala Gln Arg His Ser Ala Arg Gly Ile Val Cys Leu Gly
     -55                  -50                  -45
Lys Lys Ser Arg Cys Pro Pro Lys Ala Arg Pro Thr Ser Glu Arg Ala
 -40                  -35                  -30                  -25
Pro Trp Ala Arg Gly Arg Arg Pro Leu Leu Arg Arg Gly Leu Cys Arg
                 -20                  -15                  -10
Trp Pro Ser Arg Arg Arg Asn Met Ala Ser Lys Gly Ser Pro Ser Cys
             -5                   1                    5
Arg Leu Val Phe Cys Leu Leu Ile Ser Ala Ala Val Leu Arg Pro Gly
     10                   15                   20
Leu Gly Trp Tyr Thr Val Asn Ser Ala Tyr Gly Asp Thr Ile Val Met
 25                   30                   35                   40
Pro Cys Arg Leu Asp Val Pro Gln Asn Leu Met Phe Gly Lys Trp Lys
                 45                   50                   55
Tyr Glu Lys Pro Asp Gly Ser Pro Val Phe Ile Ala Phe Arg Ser Ser
             60                   65                   70
Thr Lys Lys Ser Val Gln Tyr Asp Asp Val Pro Glu Tyr Lys Asp Arg
         75                   80                   85
Leu Ser Leu Ser Glu Asn Tyr Thr Leu Ser Ile Asn Asn Ala Lys Ile
     90                   95                   100
Ser Asp Glu Lys Arg Phe Val Cys Met Leu Val Thr Glu Asp Asn Val
 105                  110                  115                  120
Phe Glu Ala Pro Thr Leu Val Lys Val Phe Lys Gln Pro Ser Lys Pro
                 125                  130                  135
Glu Ile Val Asn Arg Ala Ala Phe Leu Glu Thr Glu Gln Leu Lys Lys
             140                  145                  150
Leu Gly Asp Cys Ile Ser Arg Asp Ser Tyr Pro Asp Gly Asn Ile Thr
         155                  160                  165
Trp Tyr Arg Asn Gly Lys Val Leu Gln Pro Val Asp Gly Glu Val Ser
     170                  175                  180
Ile Leu Phe Lys Lys Glu Ile Asp Pro Gly Thr Gln Leu Tyr Thr Met
 185                  190                  195                  200
Thr Ser Ser Leu Glu Tyr Lys Thr Thr Lys Ser Asp Ile Gln Met Pro
                 205                  210                  215
Phe Thr Cys Ser Val Thr Tyr Tyr Gly Pro Ser Gly Gln Lys Thr Ile
             220                  225                  230
Tyr Ser Glu Gln Ala Ile Phe Asp Ile Tyr Tyr Pro Thr Glu Gln Val
         235                  240                  245
Thr Ile Gln Val Leu Pro Pro Lys Asn Ala Ile Lys Glu Gly Asp Asn
     250                  255                  260
Ile Thr Leu Gln Cys Leu Gly Asn Gly Asn Pro Pro Pro Glu Glu Phe
```

```
 265                 270                 275                 280
Met Phe Tyr Leu Pro Gly Gln Ala Glu Gly Ile Arg Ser Ser Asn Thr
                285                 290                 295
Tyr Thr Leu Thr Asp Val Arg Arg Asn Ala Thr Gly Asp Tyr Lys Cys
            300                 305                 310
Ser Leu Ile Asp Gln Arg Asn Met Ala Ala Ser Thr Thr Ile Thr Val
        315                 320                 325
His Tyr Leu Asp Leu Ser Leu Asn Pro Ser Gly Glu Val Thr Lys Gln
    330                 335                 340
Ile Gly Asp Thr Leu Pro Val Ser Cys Thr Ile Ser Ala Ser Arg Asn
345                 350                 355                 360
Ala Thr Val Val Trp Met Lys Asp Asn Ile Arg Leu Arg Ser Ser Pro
                365                 370                 375
Ser Phe Ser Ser Leu His Tyr Gln Asp Ala Gly Asn Tyr Val Cys Glu
            380                 385                 390
Thr Ala Leu Gln Glu Val Glu Gly Leu Lys Lys Arg Glu Ser Leu Thr
        395                 400                 405
Leu Ile Val Glu Gly Lys Pro Gln Ile Lys Met Thr Lys Lys Thr Asp
    410                 415                 420
Pro Ser Gly Leu Ser Lys Thr Ile Ile Cys His Val Glu Gly Phe Pro
425                 430                 435                 440
Lys Pro Ala Ile Gln Trp Thr Ile Thr Gly Ser Gly Ser Val Ile Asn
                445                 450                 455
Gln Thr Glu Glu Ser Pro Tyr Ile Asn Gly Arg Tyr Tyr Ser Lys Ile
            460                 465                 470
Ile Ile Ser Pro Glu Glu Asn Val Thr Leu Thr Cys Thr Ala Glu Asn
        475                 480                 485
Gln Leu Glu Arg Thr Val Asn Ser Leu Asn Val Ser Ala Ile Ser Ile
    490                 495                 500
Pro Glu His Asp Glu Ala Asp Asp Ile Ser Asp Glu Asn Arg Glu Lys
505                 510                 515                 520
Val Asn Asp Gln Ala Lys Leu Ile Val Gly Ile Val Val Gly Leu Leu
                525                 530                 535
Leu Ala Ala Leu Val Ala Gly Val Val Tyr Trp Leu Tyr Met Lys Lys
            540                 545                 550
Ser Lys Thr Ala Ser Lys His Ala Lys Lys Lys Lys Lys Lys Lys Lys
        555                 560                 565
Lys Gly Gly Arg Asp
    570
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<212> DNA
<213> Rattus rattus

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<222> (134)...(1078)

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gccgtgcagc gcgactgtcc ctggagccgt cccgcgcctc agacccgcga gtccccgccg    120
ctccgcgcgc agt atg gcg ccc ccc aag gcc ctc gcg ttc ggg ctc ctg       169
               Met Ala Pro Pro Lys Ala Leu Ala Phe Gly Leu Leu
                1               5                   10

ctc gcg gtg gtc acg gcg acg ctg gcc gca gct cag aaa gac tgt gtc      217
```

```
Leu Ala Val Val Thr Ala Thr Leu Ala Ala Ala Gln Lys Asp Cys Val
         15                  20                  25

tgt aac aac tac aag ctg acg tca cgg tgc tat gag aat gag aat ggt      265
Cys Asn Asn Tyr Lys Leu Thr Ser Arg Cys Tyr Glu Asn Glu Asn Gly
     30                  35                  40

gaa tgc cag tgt act tcc tat ggg aca caa aat act gtc att tgc tcc      313
Glu Cys Gln Cys Thr Ser Tyr Gly Thr Gln Asn Thr Val Ile Cys Ser
 45                  50                  55                  60

aaa ctg gca tcc aag tgc ttg gtg atg aag gcg gag atg act cac agc      361
Lys Leu Ala Ser Lys Cys Leu Val Met Lys Ala Glu Met Thr His Ser
                 65                  70                  75

aag tct ggg agg agg atg aaa ccc gag ggg gcg atc cag aac aac gac      409
Lys Ser Gly Arg Arg Met Lys Pro Glu Gly Ala Ile Gln Asn Asn Asp
             80                  85                  90

ggt ctg tat gat ccc gag tgt gac gag caa ggg ctc ttc aaa gcc aag      457
Gly Leu Tyr Asp Pro Glu Cys Asp Glu Gln Gly Leu Phe Lys Ala Lys
         95                  100                 105

cag tgc aac ggc acc gcc acg tgc tgg tgc gtg aac acc gcg ggt gtc      505
Gln Cys Asn Gly Thr Ala Thr Cys Trp Cys Val Asn Thr Ala Gly Val
    110                 115                 120

cgg aga acc gac aag gac acg gag atc acg tgc tcc gag aga gtg agg      553
Arg Arg Thr Asp Lys Asp Thr Glu Ile Thr Cys Ser Glu Arg Val Arg
125                 130                 135                 140

acc tac tgg atc atc att gag ctc aaa cac aaa gaa aga gca cag cct      601
Thr Tyr Trp Ile Ile Ile Glu Leu Lys His Lys Glu Arg Ala Gln Pro
                145                 150                 155

tat aac ttc gag agt ttg cat act gca ctt cag gac aca ttt gca tct      649
Tyr Asn Phe Glu Ser Leu His Thr Ala Leu Gln Asp Thr Phe Ala Ser
            160                 165                 170

cga tac atg ctg aat ccg aaa ttt atc aaa agt att atg tat gag aat      697
Arg Tyr Met Leu Asn Pro Lys Phe Ile Lys Ser Ile Met Tyr Glu Asn
        175                 180                 185

aat gtt atc act att gat ttg atg caa aac tct tct cag aag act caa      745
Asn Val Ile Thr Ile Asp Leu Met Gln Asn Ser Ser Gln Lys Thr Gln
    190                 195                 200

gat gat gtg gac ata gct gat gtg gct tac tat ttt gag aaa gat gta      793
Asp Asp Val Asp Ile Ala Asp Val Ala Tyr Tyr Phe Glu Lys Asp Val
205                 210                 215                 220

aag ggg gag tcc ttg ttc cat tca tct aag agc atg gac ctg agg gtg      841
Lys Gly Glu Ser Leu Phe His Ser Ser Lys Ser Met Asp Leu Arg Val
                225                 230                 235

aac ggg gag ctc ctc gat ctg gac ccc ggg cag act ctg att tac tac      889
Asn Gly Glu Leu Leu Asp Leu Asp Pro Gly Gln Thr Leu Ile Tyr Tyr
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            240                 245                 250

gtc gat gaa aag gcc ccg gag ttt tcc atg cag ggc ctc acg gct ggg      937
Val Asp Glu Lys Ala Pro Glu Phe Ser Met Gln Gly Leu Thr Ala Gly
        255                 260                 265

atc atc gcc gtc att gtc gtg gtg gtg tta gca gtc att gcg ggg att      985
Ile Ile Ala Val Ile Val Val Val Val Leu Ala Val Ile Ala Gly Ile
    270                 275                 280

gtt gtc ctg gtt ata tct aca agg aag aga tca gca aaa tat gag aag     1033
Val Val Leu Val Ile Ser Thr Arg Lys Arg Ser Ala Lys Tyr Glu Lys
285                 290                 295                 300

gct gag ata aag gag atg ggt gag ata cac aga gag ctc aat gcc         1078
Ala Glu Ile Lys Glu Met Gly Glu Ile His Arg Glu Leu Asn Ala
                305                 310                 315

taaccaacca tgccgtgtgc tgcactgagg agggagccac cggacggaaa tggcgaagaa   1138
ctcaggttgc aaacggatag acctggggag gatggagacc tttcgagggt cactgctttg   1198
ttagctaagc tcacacattt gtaacagtga aatttgtact cataaataca agcagcttga   1258
cattggcaaa aaaaaaaaaa aaaaaaaaaa agg                                1291

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      <213> Rattus rattus

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Met Ala Pro Pro Lys Ala Leu Ala Phe Gly Leu Leu Leu Ala Val Val
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Thr Ala Thr Leu Ala Ala Ala Gln Lys Asp Cys Val Cys Asn Asn Tyr
            20                  25                  30
Lys Leu Thr Ser Arg Cys Tyr Glu Asn Glu Asn Gly Glu Cys Gln Cys
        35                  40                  45
Thr Ser Tyr Gly Thr Gln Asn Thr Val Ile Cys Ser Lys Leu Ala Ser
    50                  55                  60
Lys Cys Leu Val Met Lys Ala Glu Met Thr His Ser Lys Ser Gly Arg
65                  70                  75                  80
Arg Met Lys Pro Glu Gly Ala Ile Gln Asn Asn Asp Gly Leu Tyr Asp
                85                  90                  95
Pro Glu Cys Asp Glu Gln Gly Leu Phe Lys Ala Lys Gln Cys Asn Gly
            100                 105                 110
Thr Ala Thr Cys Trp Cys Val Asn Thr Ala Gly Val Arg Arg Thr Asp
        115                 120                 125
Lys Asp Thr Glu Ile Thr Cys Ser Glu Arg Val Arg Thr Tyr Trp Ile
    130                 135                 140
Ile Ile Glu Leu Lys His Lys Glu Arg Ala Gln Pro Tyr Asn Phe Glu
145                 150                 155                 160
Ser Leu His Thr Ala Leu Gln Asp Thr Phe Ala Ser Arg Tyr Met Leu
                165                 170                 175
Asn Pro Lys Phe Ile Lys Ser Ile Met Tyr Glu Asn Asn Val Ile Thr
            180                 185                 190
Ile Asp Leu Met Gln Asn Ser Ser Gln Lys Thr Gln Asp Asp Val Asp
        195                 200                 205
Ile Ala Asp Val Ala Tyr Tyr Phe Glu Lys Asp Val Lys Gly Glu Ser
    210                 215                 220
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```
Leu Phe His Ser Ser Lys Ser Met Asp Leu Arg Val Asn Gly Glu Leu
225                 230                 235                 240
Leu Asp Leu Asp Pro Gly Gln Thr Leu Ile Tyr Tyr Val Asp Glu Lys
                245                 250                 255
Ala Pro Glu Phe Ser Met Gln Gly Leu Thr Ala Gly Ile Ile Ala Val
            260                 265                 270
Ile Val Val Val Val Leu Ala Val Ile Ala Gly Ile Val Val Leu Val
        275                 280                 285
Ile Ser Thr Arg Lys Arg Ser Ala Lys Tyr Glu Lys Ala Glu Ile Lys
    290                 295                 300
Glu Met Gly Glu Ile His Arg Glu Leu Asn Ala
305                 310                 315

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      <212> PRT
      <213> Rattus rattus

      <400> 5
Met Ala Pro Pro Lys Ala Leu Ala Phe Gly Leu Leu Leu Ala Val Val
 1               5                  10                  15
Thr Ala Thr Leu Ala Ala Ala Gln Lys Asp Cys Val Cys Asn Asn Tyr
            20                  25                  30
Lys Leu Thr Ser Arg Cys Tyr Glu Asn Glu Asn Gly Glu Cys Gln Cys
        35                  40                  45
Thr Ser Tyr Gly Thr Gln Asn Thr Val Ile Cys Ser Lys Leu Ala Ser
    50                  55                  60
Lys Cys Leu Val Met Lys Ala Glu Met Thr His Ser Lys Ser Gly Arg
65                  70                  75                  80
Arg Met Lys Pro Glu Gly Ala Ile Gln Asn Asn Asp Gly Leu Tyr Asp
                85                  90                  95
Pro Glu Cys Asp Glu Gln Gly Leu Phe Lys Ala Lys Gln Cys Asn Gly
            100                 105                 110
Thr Ala Thr Cys Trp Cys Val Asn Thr Ala Gly Val Arg Arg Thr Asp
        115                 120                 125
Lys Asp Thr Glu Ile Thr Cys Ser Glu Arg Val Arg Thr Tyr Trp Ile
    130                 135                 140
Ile Ile Glu Leu Lys His Lys Glu Arg Ala Gln Pro Tyr Asn Phe Glu
145                 150                 155                 160
Ser Leu His Thr Ala Leu Gln Asp Thr Phe Ala Ser Arg Tyr Met Leu
                165                 170                 175
Asn Pro Lys Phe Ile Lys Ser Ile Met Tyr Glu Asn Asn Val Ile Thr
            180                 185                 190
Ile Asp Leu Met Gln Asn Ser Ser Gln Lys Thr Gln Asp Asp Val Asp
        195                 200                 205
Ile Ala Asp Val Ala Tyr Tyr Phe Glu Lys Asp Val Lys Gly Glu Ser
    210                 215                 220
Leu Phe His Ser Ser Lys Ser Met Asp Leu Arg Val Asn Gly Glu Leu
225                 230                 235                 240
Leu Asp Leu Asp Pro Gly Gln Thr Leu Ile Tyr Tyr Val Asp Glu Lys
                245                 250                 255
Ala Pro Glu Phe Ser Met Gln Gly Leu Thr Ala Gly Ile Ile Ala Val
            260                 265                 270
Ile Val Val Val Val Leu Ala Val Ile Ala Gly Ile Val Val Leu Val
        275                 280                 285
Ile Ser Thr Arg Lys Arg Ser Ala Lys Tyr Glu Lys Ala Glu Ile Lys
    290                 295                 300
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Glu Met Gly Glu Ile His Arg Glu Leu Asn Ala
305                 310                 315

      <210> 6
      <211> 314
      <212> PRT
      <213> Mus musculus

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Thr Ala Thr Leu Ala Ala Ala Gln Arg Asp Cys Val Cys Asp Asn Tyr
            20                  25                  30
Lys Leu Ala Thr Ser Cys Ser Leu Asn Glu Tyr Gly Glu Cys Gln Cys
        35                  40                  45
Thr Ser Tyr Gly Thr Gln Asn Thr Val Ile Cys Ser Lys Leu Ala Ser
    50                  55                  60
Lys Cys Leu Ala Met Lys Ala Glu Met Thr His Ser Lys Ser Gly Arg
65                  70                  75                  80
Arg Ile Lys Pro Glu Gly Ile Gln Asn Asn Asp Gly Leu Tyr Asp Pro
                85                  90                  95
Asp Cys Asp Glu Gln Gly Leu Phe Lys Ala Lys Gln Cys Asn Gly Thr
            100                 105                 110
Ala Thr Cys Trp Cys Val Asn Thr Ala Gly Val Arg Arg Thr Asp Lys
        115                 120                 125
Asp Thr Glu Ile Thr Cys Ser Glu Arg Val Arg Thr Tyr Trp Ile Ile
    130                 135                 140
Ile Glu Leu Lys His Lys Glu Arg Glu Ser Pro Tyr Asp His Gln Ser
145                 150                 155                 160
Leu Gln Thr Ala Leu Gln Glu Ala Phe Thr Ser Arg Tyr Lys Leu Asn
                165                 170                 175
Gln Lys Phe Ile Lys Asn Ile Met Tyr Glu Asn Asn Val Ile Thr Ile
            180                 185                 190
Asp Leu Met Gln Asn Ser Ser Gln Lys Thr Gln Asp Asp Val Asp Ile
        195                 200                 205
Ala Asp Val Ala Tyr Tyr Phe Glu Lys Asp Val Lys Gly Glu Ser Leu
    210                 215                 220
Phe His Ser Ser Lys Ser Met Asp Leu Arg Val Asn Gly Glu Pro Leu
225                 230                 235                 240
Asp Leu Asp Pro Gly Gln Thr Leu Ile Tyr Tyr Val Asp Glu Lys Ala
                245                 250                 255
Pro Glu Phe Ser Met Gln Gly Leu Thr Ala Gly Ile Ile Ala Val Ile
            260                 265                 270
Val Val Val Ser Leu Ala Val Ile Ala Gly Ile Val Val Leu Val Ile
        275                 280                 285
Ser Thr Arg Lys Lys Ser Ala Lys Tyr Glu Lys Ala Glu Ile Lys Glu
    290                 295                 300
Met Gly Glu Ile His Arg Glu Leu Asn Ala
305                 310

      <210> 7
      <211> 314
      <212> PRT
      <213> Homo sapien

      <400> 7
Met Ala Pro Pro Gln Val Leu Ala Phe Gly Leu Leu Leu Ala Ala Ala
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 1               5                  10                  15
Thr Ala Thr Phe Ala Ala Ala Gln Glu Glu Cys Val Cys Glu Asn Tyr
            20                  25                  30
Lys Leu Ala Val Asn Cys Phe Val Asn Asn Asn Arg Gln Cys Gln Cys
        35                  40                  45
Thr Ser Val Gly Ala Gln Asn Thr Val Ile Cys Ser Lys Leu Ala Ala
    50                  55                  60
Lys Cys Leu Val Met Lys Ala Glu Met Asn Gly Ser Lys Leu Gly Arg
65                  70                  75                  80
Arg Ala Lys Pro Glu Gly Ala Leu Gln Asn Asn Asp Gly Leu Tyr Asp
                85                  90                  95
Pro Asp Cys Asp Glu Ser Gly Leu Phe Lys Ala Lys Gln Cys Asn Gly
            100                 105                 110
Thr Ser Thr Cys Trp Cys Val Asn Thr Ala Gly Val Arg Arg Thr Asp
        115                 120                 125
Lys Asp Thr Glu Ile Thr Cys Ser Glu Arg Val Arg Thr Tyr Trp Ile
    130                 135                 140
Ile Ile Glu Leu Lys His Lys Ala Arg Glu Lys Pro Tyr Asp Ser Lys
145                 150                 155                 160
Ser Leu Arg Thr Ala Leu Gln Lys Glu Ile Thr Thr Arg Tyr Gln Leu
                165                 170                 175
Asp Pro Lys Phe Ile Thr Ser Ile Leu Tyr Glu Asn Asn Val Ile Thr
            180                 185                 190
Ile Asp Leu Val Gln Asn Ser Ser Gln Lys Thr Gln Asn Asp Val Asp
        195                 200                 205
Ile Ala Asp Val Ala Tyr Tyr Phe Glu Lys Asp Val Lys Gly Glu Ser
    210                 215                 220
Leu Phe His Ser Lys Lys Met Asp Leu Thr Val Asn Gly Glu Gln Leu
225                 230                 235                 240
Asp Leu Asp Pro Gly Gln Thr Leu Ile Tyr Tyr Val Asp Glu Lys Ala
                245                 250                 255
Pro Glu Phe Ser Met Gln Gly Leu Lys Ala Gly Val Ile Ala Val Ile
            260                 265                 270
Val Val Val Val Met Ala Val Val Ala Gly Ile Val Val Leu Val Ile
        275                 280                 285
Ser Arg Lys Lys Arg Met Ala Lys Tyr Glu Lys Ala Glu Ile Lys Glu
    290                 295                 300
Met Gly Glu Met His Arg Glu Leu Asn Ala
305                 310
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<210> 8
<211> 323
<212> PRT
<213> Homo sapien

<400> 8

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Met Ala Arg Gly Pro Gly Leu Ala Pro Pro Pro Leu Arg Leu Pro Leu
 1               5                  10                  15
Leu Leu Leu Val Leu Ala Ala Val Thr Gly His Thr Ala Ala Gln Asp
            20                  25                  30
Asn Cys Thr Cys Pro Thr Asn Lys Met Thr Val Cys Ser Pro Asp Gly
        35                  40                  45
Pro Gly Gly Arg Cys Gln Cys Arg Ala Leu Gly Ser Gly Met Ala Val
    50                  55                  60
Asp Cys Ser Thr Leu Thr Ser Lys Cys Leu Leu Leu Lys Ala Arg Met
65                  70                  75                  80
Ser Ala Pro Lys Asn Ala Arg Thr Leu Val Arg Pro Ser Glu His Ala
```

```
                85                  90                  95
Leu Val Asp Asn Asp Gly Leu Tyr Asp Pro Asp Cys Asp Pro Glu Gly
            100                 105                 110
Arg Phe Lys Ala Arg Gln Cys Asn Gln Thr Ser Val Cys Trp Cys Val
        115                 120                 125
Asn Ser Val Gly Val Arg Arg Thr Asp Lys Gly Asp Leu Ser Leu Arg
    130                 135                 140
Cys Asp Asp Leu Val Arg Thr His His Ile Leu Ile Asp Leu Arg His
145                 150                 155                 160
Arg Pro Thr Ala Gly Ala Phe Asn His Ser Asp Leu Asp Ala Glu Leu
                165                 170                 175
Arg Arg Leu Phe Arg Glu Arg Tyr Arg Leu His Pro Lys Phe Val Ala
            180                 185                 190
Ala Val His Tyr Glu Gln Pro Thr Ile Gln Ile Glu Leu Arg Gln Asn
        195                 200                 205
Thr Ser Gln Lys Ala Ala Gly Glu Val Asp Ile Gly Asp Ala Ala Tyr
    210                 215                 220
Tyr Phe Glu Arg Asp Ile Lys Gly Glu Ser Leu Phe Gln Gly Arg Gly
225                 230                 235                 240
Gly Leu Asp Leu Arg Val Arg Gly Glu Pro Leu Gln Val Glu Arg Thr
                245                 250                 255
Leu Ile Tyr Tyr Leu Asp Glu Ile Pro Pro Lys Phe Ser Met Lys Arg
            260                 265                 270
Leu Thr Ala Gly Leu Ile Ala Val Ile Val Val Val Val Val Ala Leu
        275                 280                 285
Val Ala Gly Met Ala Val Leu Val Ile Thr Asn Arg Arg Lys Ser Gly
    290                 295                 300
Lys Tyr Lys Lys Val Glu Ile Lys Glu Leu Gly Glu Leu Arg Lys Glu
305                 310                 315                 320
Pro Ser Leu
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